

CLAIMS

1. A powder comprising silica-coated zinc oxide fine particles in which the surface of each particle is coated with silica, wherein large particles of 5  $\mu\text{m}$  or  
5 more account for 0.1 mass% or less.

2. A powder comprising surface-hydrophobicized silica-coated zinc oxide fine particles in which the silica-coated zinc oxide fine particles whose surfaces have been coated with silica are further treated with a  
10 hydrophobicity-imparting agent, wherein large particles of 5  $\mu\text{m}$  or more account for 0.1 mass% or less.

3. The powder as claimed in claim 2, wherein the hydrophobicity-imparting agent is one or more members selected from the group consisting of silicone oils,  
15 alkoxysilanes, silane coupling agents, and higher fatty acid salts.

4. The powder as claimed in any of claims 1 through 3, wherein the silica-coated zinc oxide fine particles have silica coating of 0.5 to 100 nm in  
20 thickness.

5. The powder as claimed in any of claims 1 through 4, wherein the silica-coated zinc oxide fine particles have an average primary particle size of 1 to 200 nm.

25 6. The powder as claimed in claim 2 or 3, wherein the surface-hydrophobicized, silica-coated zinc oxide fine particles have an average primary particle size of 5 to 120 nm and a silica-film thickness of 0.5 to 25 nm.

7. The powder as claimed in any of claims 1  
30 through 6, wherein the ratio I of infrared absorption peak intensity of silica film of the silica-coated zinc oxide fine particles at 1150 to 1250  $\text{cm}^{-1}$  to that at 1000 to 1100  $\text{cm}^{-1}$  as determined on an infrared absorption spectrum is 0.2 or more ( $I=I_1/I_2$ ; wherein  $I_1$  denotes  
35 absorption peak intensity at 1150 to 1250  $\text{cm}^{-1}$  and  $I_2$  denotes absorption peak intensity at 1000 to 1100  $\text{cm}^{-1}$ ),

and the silica film has a refractive index of 1.435 or more.

8. The powder as claimed in any of claims 1 through 7, wherein the powder exhibits a photocatalytic activity of 60 Pa/min or less as measured through the tetralin auto-oxidation method.

9. The powder as claimed in any of claims 1 through 8, wherein the powder exhibits a dye color fading rate ( $\Delta\text{ABS}_{490}$ /hour) of 0.1 or less as measured through the sunset yellow method.

10. The powder as claimed in any of claims 1 through 9, wherein the powder exhibits an organic UV absorber decomposition rate ( $\Delta\text{ABS}_{340}$ /hour) of 0.01 or less as measured through the Parasol method.

11. The powder as claimed in any of claims 1 through 10, wherein the powder exhibits a percent organic UV absorber decomposition of 5% or less as measured through the ethylhexyl p-methoxycinnamate method.

12. The powder comprising silica-coated zinc oxide fine particles as claimed in any one of claims 1 through 11, which contains titanium oxide.

13. The powder comprising silica-coated zinc oxide fine particles as claimed in claim 12, wherein titanium oxide in an amount of 2 parts by mass to 5 parts by mass is further contained based on zinc oxide of 10 parts by mass.

14. The powder comprising silica-coated zinc oxide fine particles as claimed in claim 12 or 13, wherein at least one part of titanium oxide is coated with silica.

15. The powder comprising silica-coated zinc oxide fine particles as claimed in any one of claims 12 through 14, wherein the titanium oxide contains a mixed crystal having a titanium-oxygen-silicon bond in its primary particles.

16. The powder comprising silica-coated zinc oxide fine particles as claimed in claim 15, wherein when the

BET specific surface area of titanium oxide is represented by "A m<sup>2</sup>/g" and the SiO<sub>2</sub> content is represented by "B mass%", the ratio of B/A is from 0.02 to 0.5.

5           17. The powder comprising silica-coated zinc oxide fine particles as claimed in claim 15 or 16, wherein BET specific surface area of the titanium oxide is from 10 to 200 m<sup>2</sup>/g.

10           18. The powder comprising silica-coated zinc oxide fine particles as claimed in any one of claims 15 through 17, wherein the average primary particle size of titanium oxide is 0.008 μm to 0.15 μm.

15           19. The powder comprising silica-coated zinc oxide fine particles as claimed in any one of claims 15 through 18, wherein the titanium oxide has core (a nucleus)/shell (a husk) structure, wherein the core is TiO<sub>2</sub>-rich structure and the shell is SiO<sub>2</sub>-rich structure.

20           20. An organic polymer composition containing a powder comprising silica-coated zinc oxide fine particles as claimed in any one of claims 1 through 19, and a thermoplastic resin.

25           21. An organic polymer composition consisting essentially of a powder comprising silica-coated zinc oxide fine particles as claimed in any one of claims 1 through 19, and a thermoplastic resin.

30           22. The organic polymer composition as claimed in claim 20 or 21, wherein the thermoplastic resin is selected from the group consisting of polyethylenes, polypropylenes, polystyrenes, polyamides, polyesters, and polycarbonates.

          23. A shape-imparted product of an organic polymer composition as claimed in any one of claims 20 through 22.

35           24. The shape-imparted product as claimed in claim 23, which is selected from the group consisting of fibers, yarns, films, tapes, hollow products, and multi-layer structures.

25. An object comprising a shape-imparted product  
as claimed in claim 23 or 24 and selected from the group  
consisting of building materials for interior furnishings  
and exterior finish, machinery, exterior and interior  
5 decor materials for automobiles, glass products, electric  
appliances, agricultural materials, electronic apparatus,  
tools, tableware, bath products, toiletry products,  
furniture, clothing, woven fabrics, non-woven fabrics,  
cloth products, leather products, paper products,  
10 sporting goods, futon, containers, eyeglasses,  
signboards, piping, wiring, brackets, sanitary materials,  
automobile parts, outdoor goods such as tents, panty  
hose, socks, gloves, and masks.

26. The cosmetic material comprising the powder  
15 comprising silica-coated zinc oxide fine particles as  
claimed in any one of claims 1 through 19.